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**Process for producing low-concentration gas mixtures, and apparatus for producing the same.**

The invention relates to a process for producing gas mixtures by a plurality of dilution steps of a high concentration standard gas with a high purity diluent gas.

According to the invention, as soon as the high purity diluent gas is generated, no further contaminants such as gaseous impurities are added during the further mixing or diluting steps of the process. Only orifices or needle valves are used in the mixing or diluting lines while mass flow controllers and pressure regulators are placed upstream, at the output of the gas sources and/or downstream, i.e. in the gas venting lines.

The invention particularly applies to trace analysis of gases with APIMS.

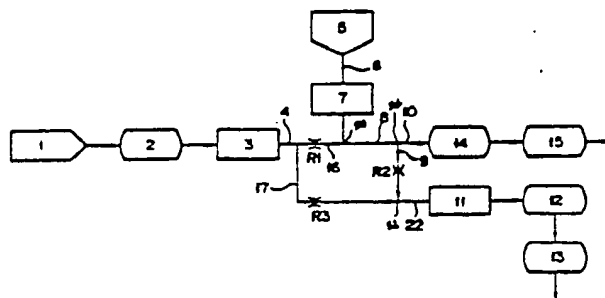


FIG. 1